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Hitoshi Hata

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EXAMINER

OLADAPO, TAIWO

ART UNIT

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1797

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### **DETAILED ACTION**

1. The amendment dated 02/24/2010 has been considered and entered for the record. The amendment overcomes the previous rejection of claim 4 which is withdrawn. Other previous rejections are maintained. New grounds of rejection are made in view of the amendments.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

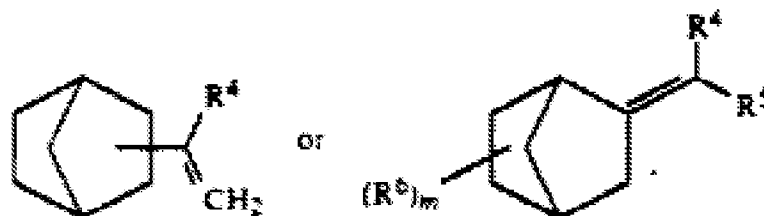
4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 3, 6, 8 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tipton (US 6,372,696) in view of Tsubouchi et al. (US 5,126,065) and in view of Watts et al. (US 6,337,309)

6. In regards to claims 1, 13, 14, Tipton teaches lubricating automotive traction fluids such as in automatic or continuously variable transmissions (CVT) (column 1 lines 4 - 17) comprising a base fluid of a type 1 or a type 2 or mixtures, wherein the base fluid of type 2 can be polymers such as dimers, trimers, tetramers of norbornanes as taught in U.S. Patent 5,126,065 directed to the invention of Tsubouchi et al. (column 3 lines 8 – 22). Tsubouchi teaches process for improving coefficient of traction drive fluid wherein the fluid comprises dimer, trimer or tetramer of norbornanes and/or norbornenes (abstract). The preferred norbornanes can have the general formula (See Tsubouchi et al., column 3 lines 53 – 66):



wherein,  $\text{R}^4$ ,  $\text{R}^5$  and  $\text{R}^6$  are each a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, preferably  $\text{R}^4$ ,  $\text{R}^5$  and  $\text{R}^6$  are each a hydrogen atom or a methyl group, and  $m$  is 1 or 2.

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The preferred norbornanes taught by Tsubouchi are identical to the preferred norbornanes of the current invention (See applicants' specification, page 9 lines 3 – 22). Therefore, baseoils comprising the preferred norbornanes of Tsubouchi are encompassed in the baseoils of Tipton, which would possess the cohesive energy densities recited in the claim(s).

Tipton teaches that the lubricant has kinematic viscosities at 40°C in a range that anticipates the limitations of claim 1 (see column 19 & 20 table). Tipton also teaches the lubricant contains phosphorus compounds, including esters (column 11 lines 35-42). Tipton does not teach phosphoric esters containing a thioether bond.

Watts teaches a CVT fluid similar to the invention of Tipton [0001]. Watts teaches that the fluid contains phosphorus esters of a structure I having hydrocarbyl groups R and R<sub>1</sub> which contains thioether bonds (column 5 lines 45 – 59). The hydrocarbyl groups contain from alkyl or aryl groups, wherein the alkyl group can be decyl which is a C<sub>10</sub> group (column 6 lines 13 – 26). The compound meets the limitations of the phosphorus ester compound of claim 4, wherein A is hydrogen and R<sup>7</sup>, R<sup>8</sup> are decyl groups having thioether bonds. Watts teaches the phosphorus ester can be present in a lubricant at from 0.01 to 5% by mass which is equivalent to 100ppm to 50,000ppm (column 6 lines 32 – 35). In Example P-1-A, the phosphorus ester is prepared and the final product comprises 8.4% phosphorus, which amounts to from 8ppm to 4000ppm of phosphorus in the lubricant and overlaps the limitation of claim 1 (column 6 lines 42 – 59).

In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

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It would have been obvious for one of ordinary skill in the art at the time of the invention to have used the thioether bond-containing phosphite ester of Watts as the phosphorus compound in the lubricating oil of Tipton, as Watts teaches that the phosphite is useful in CVT fluids. Further, since Tipton teaches the norbornane/norbornene polymers of Tsubouchi are suitable for practicing the invention, it would have been obvious for one of ordinary skill in the art at the time of the invention to have used the polymers of Tsubouchi as base fluids in the lubricant of Tipton.

7. In regards to claim 3, Tipton, Tsubouchi and Watts combined teach the lubricating oil containing groups such as dimers, trimers or tetramers of norbornanes as previously stated.

8. In regards to claim 6, 11, Tipton, Tsubouchi and Watts combined teach the lubricant having overbased calcium sulfonate (column 21 table). Tipton teaches that the overbased compounds have base values (mg KOH/g) of preferably 100 and up to preferably 400 (column 8 lines 28 – 41).

9. In regards to claim 8 – 10, 12, Tipton, Tsubouchi and Watts combined teach the lubricating oil composition for continuously variable transmission comprising the limitations of claim 1 as previously stated. The fluid is therefore suitable for the intended use as metallic belt, traction drive, or chain type CVT lubricant according to the instant invention.

The claims are product claims that are drawn to a composition of matter and therefore statements of intended use do not carry any patentable weight. The reference teaches the compositional limitations of claims 8 – 10.

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10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 4, 15 – 18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tipton (US 6,372,696) in view of Tsubouchi et al. (US 5,126,065) in view of Watts et al. (US 6,337,309) and further in view of Hata et al. (US 2002/0055441)

14. In regards to claims 4, 15 – 18, Tipton, Tsubouchi and Watts combined teach the composition wherein the base oils are dimers, trimers and tetramers of norbornanes having the

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cohesive energy density recited in claim 16. The combined references do not particularly recite the phosphate compounds of claims.

Hata is added to teach CVT lubricants similar to Tipton [0002]. Hata teaches phosphates having a structure of formula (I) or (I-a) which comprises R groups that are 1 to 18 carbon atoms and can comprise one or more sulfur atoms which meets the limitation of the structure recited in the claim [0026, 0034]. The compounds are mono or di-(octylthioethyl)hydrogen phosphate, mono or di(hexylthioethyl)hydrogen phosphate, mono or di-(dodecylthioethyl)hydrogen phosphate, mono or di-(hexadecylthioethyl)hydrogen phosphate etc. which meets the limitations of the compounds of claim 18. The phosphates of Tipton also meets the hydrogen phosphate structure of claim 17 which requires that the R groups be hydrocarbon having 1 to 18 carbons and having a thioether bond. Tipton also teaches phosphite esters meeting the limitations of claim 15 [0037, (I-b)]. The fluid comprises a phosphorus content of from 100 to 600 ppm contributed by the phosphate which is within the claimed limitation [0028].

It would have been obvious for one of ordinary skill in the art at the time of the invention to have used the phosphates of Hata in the composition of Tipton, Tsubouchi and Watts combined, as Hata teaches they are suitable for use in transmission lubricants.

15. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tipton (US 6,372,696) in view of Tsubouchi et al. (US 5,126,065) in view of Watts et al. (US 6,337,309) and further in view of Conary et al. (US 6,096,691)

16. In regards to claim 7, Tipton and Watts teach the lubricating oil composition for continuously variable transmissions. Tipton, Tsubouchi and Watts combined teach that the

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lubricating oil containing optional additives such as antiwear (column 21 line 25) but does not particularly recite a sulfur antiwear.

Conary teaches gear oil additives and lubricants containing them (Title) similar to the invention of Tipton, Tsubouchi and Watts combined. Conary teaches that the additives can be, i.e. sulfur antiwear (column 1 line 35; column 17 lines 10 – 12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have used sulfur antiwear additives in the composition according to Tipton, Tsubouchi and Watts combined, as Conary teaches it is a suitable antiwear additive for transmission or gear lubricating oils.

### ***Response to Arguments***

17. Applicant's arguments have been considered but they are not persuasive.

18. The applicants primarily argue that Tipton only mentions hydrogenated products of dimers, trimers, or tetramers of norbornanes and/or norbornenes as potential components of base fluids but nowhere does Tipton actually use those materials in any examples of the reference, and nowhere does Tipton identify the cohesive energy density as being a result effective variable or discuss the benefit in having a CED of 0.2 GPa or more as claimed.

19. As discussed in the rejection above, Tipton teaches base fluids of two types wherein type 2 comprises polymers of norbornanes and/or norbornenes which can be used singly as base fluids. Tipton refers to Tsubouchi et al. (US 5,126,065) as teaching the norbornanes and/or norbornenes suitable for use as base oil, while Tsubouchi teaches preferred compounds that are identical to the preferred compounds of the applicants. Therefore, Tipton teaches compounds

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having similar or identical CED as the claimed composition and does not have to recite the superior properties of having higher values. The claimed compositions are therefore not distinguished from the combination of Tipton and Watts combined and the arguments are not persuasive.

20. Applicants assert superior unexpected results of the claimed composition however the results are not commensurate in scope with the claims. In regards to the results in Table 4.1 of the applicants specification the inventive example 2 comprises a base oil having a specific CED value of 0.234 while the claim can comprise any norbornane/norbornene polymer(s) as base oil having a CED value of 0.2 or higher. While examples 2 and 3 limit the amount of base oil, the claim allows for any suitable amount of base oil in the lubricant. While the inventive example 3 comprises a further additive at a specific amount besides the phosphite, the claim allows for any number of further additive(s) to be present in minor amounts. The applicants have therefore not demonstrated superior results sufficient to rebut the case of obviousness.

### ***Conclusion***

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAIWO OLADAPO whose telephone number is (571)270-3723. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TO

/Glenn A Caldarola/  
Supervisory Patent Examiner, Art Unit  
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